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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/604,196	06/30/2003	Omer Dokumaci	BUR920020104US1	1195
30678	7590	02/17/2005	EXAMINER	
CONNOLLY BOVE LODGE & HUTZ LLP SUITE 800 1990 M STREET NW WASHINGTON, DC 20036-3425			VINH, LAN	
			ART UNIT	PAPER NUMBER
			1765	

DATE MAILED: 02/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/604,196	DOKUMACI ET AL.	
	Examiner	Art Unit	
	Lan Vinh	1765	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-16 is/are rejected.
- 7) ☒ Claim(s) 5 and 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>063003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 14 is objected to because of the following informalities: In line 10 of claim 14, the word "ovides" appears to be a typographical error. The examiner suggests replacing "ovides" with --provides--. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-3, 6-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Kim et al (US 6,683,340)

Kim discloses a method for forming a memory device. The method comprises the steps of:

providing a device/article comprises a substrate 200 and one structure formed on the substrate (fig. 6E)

forming a first layer/first material 214 over the device/article (col 7, lines 56-57; fig. 6F)

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forming a second nitride layer/second material 215 over the first layer 214 (col 7, lines 66-67)

removing a portion of layer 215/second material layer using a CMP (chemical mechanical polishing) (col 7, line 67, fig. 6 H), which reads on removing a portion of the second material using a polishing pad and a liquid/slurry contains abrasives

removing a portion of layer 214/first material (col 8, lines 16-18; fig. 6K)

Regarding claims 2, 7, nitride is known in the art as a hard material (see prior art of record for evidence of this basis)

Regarding claim 6, Kim discloses removing a portion of layer 215/second material forming a substantially planar surface from the layer 215/second material (fig. 6H)

Regarding claim 8, Kim discloses removing additional portion of layer 215/second material (col 8, lines 12-14; fig. 6J)

Regarding claim 9, Kim discloses forming a planar surface of the layer 214/first material (fig. 6K)

Regarding claim 10, fig. 6J of Kim shows that all of the layer 215/second material is removed from the layer 214/first material

Regarding claims 11-12, Kim discloses using wet-etching/nonselective etching to remove portion of layer 214 and 215 (col 7, lines 66-67; col 8, lines 12-15)

Regarding claim 13, Fig. 6K of Kim shows that more of layer 214/first material is removed in an etching step

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4. Claims 14-15 is rejected under 35 U.S.C. 102(e) as being anticipated by Kim et al (US 6,683,340)

Kim discloses a method for forming a memory device. The method comprises the steps of:

providing a device/article comprises a substrate 200 and one structure formed on the substrate (fig. 6E), fig. 6F shows the device having a non-planar topography

forming a first layer/first material 214 over the device/article (col 7, lines 56-57; fig. 6F)

forming a second nitride layer/second material 215 over the first layer 214 (col 7, lines 66-67), nitride is known in the art as a hard material (see prior art of record for evidence of this basis)

removing a portion of layer 215/second material layer using a CMP (chemical mechanical polishing) (col 7, line 67, fig. 6 H), which reads on removing a portion of the second material using a polishing pad and a liquid/slurry contains abrasives, Kim also discloses removing a portion of layer 215/second material forming a substantially planar surface of layer 215/second material (fig. 6H)

using wet-etching/nonselective etching to remove portion of layer 214 and 215 (col 7, lines 66-67; col 8, lines 12-15), forming a planar surface of the layer 214/first material (fig. 6K), fig. 6J of Kim shows that all of the layer 215/second material is removed from the layer 214/first material

more of layer 214/first material is removed in an etching step (fig. 6K)

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 4, 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al (US 6,683,340) in view of Ashjace et al (US 6,852,208)

Kim's method has been described above. Unlike the instant claimed inventions as per claims 4, 16, Kim fails to specifically disclose that the polishing pad comprises abrasives

Ashjace discloses a method for polishing comprises the step of polishing using a polishing pad comprises abrasives (col 5, lines 59-60)

Hence, one skilled in the art at the time the invention was made would have found it obvious to modify Kim's CMP polishing step by using polishing pad comprises abrasives as per Ashjace because Ashjace discloses that for effective polishing it is preferred that the pad have an abrasive surface (col 5, lines 60-61)

Allowable Subject Matter

7. Claims 5, 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 5, 17, the cited prior art of record, taken alone or in combination, fails to disclose a method for planarizing comprises the step of removing a portion of the second material wherein none of the first material is removed, in combination with the rest of the limitations of claims 5, 17. In the contrary, the closest cited prior art of Kim et al (US 6,683,340) discloses a method for forming a memory device comprises the step of removing a portion of the second layer 215/second material while removing a portion of the first layer 214/first material (fig. 6H)

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Chen et al (US 6,753,249) discloses forming a hard layer such as a nitride layer (col 4, lines 24-26)

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Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lan Vinh whose telephone number is 571 272 1471. The examiner can normally be reached on M-F 8:30-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 571 272 1465. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



LV
February 17, 2005